

PRODUCT INFORMATION

18.0 Inch Active Matrix TFT-LCD
(LG_Philips & 5120 controller card)



LCD18-009
REVISION: original Rev.
DATE: 01 / 25 / 2005



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1. ELECTRICAL PERFORMANCE

All items must be performed under "standard test conditions" unless otherwise specified.

1.1 STANDARD TEST CONDITIONS

-Warm up time: 30 minutes
-DC supply voltage: 12V_DC
-Ambient temperature: 25 ^{0}C+/- 5^{0}C
-Humidity: 10 ~ 90 %
-Display mode : 1280x1024/ 75Hz
-Input signal : 0.7 Vpp TTL level: Hsync & Vsync / DVI
-External controls for picture position and size : Preset condition
-Video generator : QUANTUM 801 SL or equivalent

1.2 LCD PANEL GENERAL SPECIFICATIONS

-LCD Panel :LG.PHILIPS LM181E06
-Screen diagonal :459.74mm(18.1")
-Display Area :359.040(H)x287.232(V)mm
-Pixel HxV :1280x1024 (RGB)
-Pixel Pitch: 0.2805(per one triad)x0.2805
-Driver Element: a-Si TFT active matrix
-Support Colors: 16,777,216 colors (8-bit for R,G,B)
-Typical white luminance: 250 cd/m^2 (type. Center 1 Point)
-Contrast Ratio: 350:1
-Viewing Angle: 80(left),60(right),80(up),80(down)
-Signal Frequency: 80KHz max
-Frame rate: 60Hz typ ,85Hz max
-Response Time:15 ms typ.
-Surface treatment: :Anti-glare,hard coating (3H)



1.3 POWER SUPPLY

1.3.1a AC INPUT RANGE accepted via Power Supply with 12V DC in secondary

-Voltage: 100 ~ 240 VAC universal (if power supply is used for main jack AD)
-Frequency: 60 / 50 Hz

1.3.2 POWER CONSUMPTION

< 45 W max. at the specified voltage and frequency

1.3.3 INRUSH CURRENT POWER SUPPLY AC/DC

-Will not exceed 60A at 264V input for a cold start at 25°c

1.3.4 DC INPUT JACK

-PIN (+12V, GND) (5.5ϕ x 2.5 x 9.5 plug)

1.4 PULL-IN RANGE OF SYNCHRONIZATION

-Horizontal frequency: 30 KHz ~ 80 KHz
-Vertical frequency: 50 Hz ~ 75 Hz

1.5 INPUT SIGNAL:

DVI (Digital Visual Interface)

Video R.B.G. input	Level:	Analog 0.7 Vpp
	Polarity:	Positive
	Impedance:	75 ohm
Synchronization Input		H.V. Separate Sync. TTL compatible.



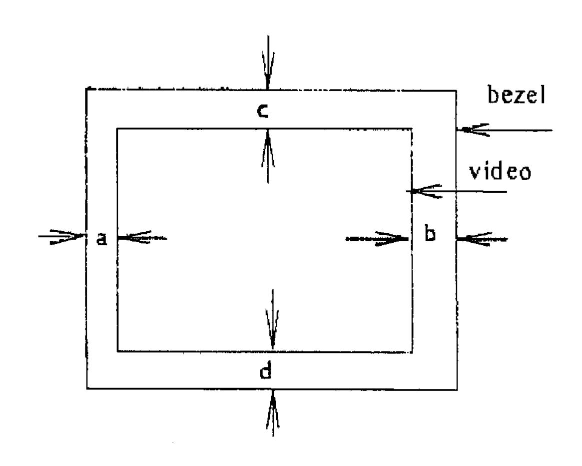
1.6 PICTURE PERFORMANCE

-Implies "standard test conditions" unless otherwise specified.
-Values were measured after 10 minutes warm-up period.

1.6.1 NORMAL DISPLAY SIZE

-H=359.040mm
-V=287.232mm

2. PICTURE SIZE AND POSITION OFFSET



H-size 359 .040mm

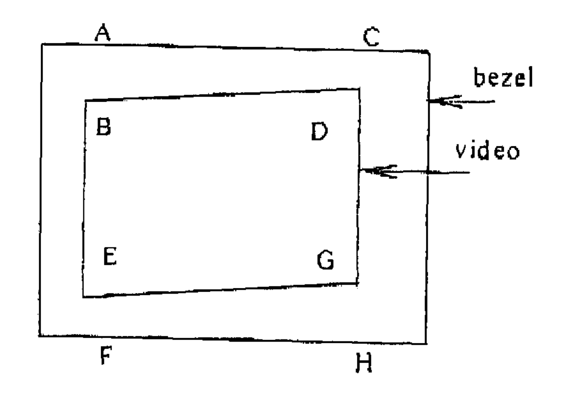
V-size 287 .232mm

H-offset | a – b | < = 1 mm

V-offset | c – d | < = 1 mm



2.1 TILT



/AB-CD/ = Tilt on top <= 0.5 mm
/EF-GH/ = Tilt on bottom <= 0.5mm

2.2 DISPLAY QUALITY

- Line defect: can't be seen
- Bright dots: bright pixel defects = 2 max.pixel
- Dark dots: dark pixel defects = 3 max.pixel
- Total dots defects: <=5 pixel

Continuous defects:

Two continuous bright dots: <= 1pair
Over three continuous bright dots (vertical, horizontal.oblique): No
Two continuous dark dots (vertical,horizontal,oblique): <=0 pair
Over three continuous dark dots (vertical, horizontal, oblique): <=0 pair



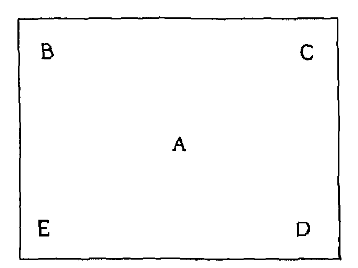
3. LUMINANCE OUTPUT

Under standard test conditions

3.1 BRIGHTNESS LEVEL

Input full white pattern. More than 250 cd/m^2 at center of screen with brightness and contrast at max.

3.2 BRIGHTNESS UNIFORMITY



359.040x287.232mm

-Brightness uniformity of these 5 points is defined as below.

-(Min. brightness / Max. brightness) x 100% >= 80%

3.3 COLOR TEMPERATURE

-x= 0.281 +/- 10%

-y= 0.311 +/- 10%

-Test at 9300 ^{0}K Preset 200 cd/m^2

-x= 0.313 +/- 10%

-y= 0.329 +/- 10%

-Test at 6500 ^{0}K Preset 250 cd/m^2

3.4 SETUP

-Light output setup:	Pattern:	full white
	Contrast:	50%
	Brightness:	200 cd/m^2
-Test pattern:		NOKIA



5. RELIABILITY

5.1 MONITOR MTBF

MTBF / per LG_Philips (...E06) / : 40,000hrs.

5.2 ENVIRONMENTAL

Operating temperature : 0 ~ 50 ^{0}C
Storage temperature : -20 ~ 60 ^{0}C
Humidity: 10 ~ 90%

5.3 VIBRATION TEST & DROP TEST

TBD

6. MECHANICAL SPECIFICATIONS: open frame

6.1 CONNECTOR HD15 Input Connector

Pin No	Signal	Pin No	Signal
1	Red Input	9	NC
2	Green Input	10	GND
3	Blue Input	11	NC
4	NC	12	SDA
5	GND	13	Horizontal Sync.
6	RED Return	14	Vertical Sync.
7	Green Return	15	SCL
8	Blue Return		



DVI Input Connector

Pin	Signal Assignment	Pin	Signal Assignment	Pin	Signal Assignment
1	T.M.D.S Date 2-	9	T.M.D.S Date 1-	17	T.M.D.S Date 0-
2	T.M.D.S Date 2+	10	T.M.D.S Date 1+	18	T.M.D.S Date 0+
3	T.M.D.S Date 2/4 Shield	11	T.M.D.S Date 1/3 Shield	19	T.M.D.S Date 0/5 Shield
4	T.M.D.S Date 4-	12	T.M.D.S Date 3-	20	T.M.D.S Date 5-
5	T.M.D.S Date 4+	13	T.M.D.S Date 3+	21	T.M.D.S Date 5+
6	DDC Clock	14	+5V Power	22	T.M.D.S Clock Shield
7	DDC Date	15	Ground(return for +5V, H Sync, V Sync)	23	T.M.D.S Clock+
8	Analog Vertical Sync	16	Hot Plug Detect	24	T.M.D.S Clock-
C1	Analog Red	C2	Analog Green	C3	Analog Blue

INVERTER CONNECTOR

Pin 1 : vcc
Pin 2 : vcc
Pin 3 : backlight_enable
Pin 4 : bkacklight_adjustment
Pin 5 : gnd
Pin 6 : gnd



7. EXTERNAL CONTROLS

Front Controls: 7.1. Power LED
7.2. Power Switch (removed from configuration for standard applications)
7.3. function key
7.4.OSD Menu: Select signal, Video, Audio, Color, Image , Language Tool, Exit.
Select signal : VGA, DVI
Video Control : Contrast , Brightness , Black Level
Audio Control(OPTIONAL) : Volume, Balance (not used)
Color Control : 9300^{0}K, 6500^{0}K, User(R-Gain, G-Gain, B-Gain) Flesh Tone, Hue, Saturation
Image Control : Auto-tune, H-sizs, H-phase, H-position, V-position
Language : English, Francais, Deutsch, Italiano, Espnanol,
(NOTE: Flash ROM with the language will be comming soon!)
Tools: OSD Control, Recall, Sharpness
OSD Control: OSD Time, OSD H_position, OSD V_position

8. Monitor is PLUG & PLAY

9. DEFINITION OF MODES

There are three mode of operation for the VT-18AE
These are ON, STAND-BY/ SUSPEND and OFF

ON : Both Horizontal and Vertical syncs are present and the monitor is in normal operation

STAND-BY: Horizontal or Vertical sync is inactive per VESA DPMS and not operational.
All parts & SUSPEND : The monitor is able to perform a quick start when both Horizontal and Vertical signals are active again.



OFF : Both Horizontal and Vertical sync are inactive per VESA DPMS and all parts of the monitor are disabled . This is the lowest possible power state of the monitor that maintains an automatic on when both the Horizontal and Vertical signals are active again. Recovery time will take longer than Stand-buy / Suspend mode.

10. POWER CONSUMPTION

Normal operation: ~ 45W (max.)
Stand-by/Suspend mode:3W
Off Mode: <3W

11. TIMING

NAME	VGA640X350-70	VGA720X400-70	VGA640X480-60	640X480-75	VESA800X600-60	VESA800X600-72
PIXEL RATE	25.175 MHz	28.322 MHz	25.175 MHz	31.500 MHz	40.000 MHz	50.000 MHz
INTERLACE	NO	NO	NO	NO	NO	NO
VIDEO	ANALOG-COLOR	ANALOG-COLOR	ANALOG-COLOR	ANALOG-COLOR	ANALOG-COLOR	ANALOG-COLOR
SYNC ON G?	NO	NO	NO	NO	NO	NO
SYNC LEVEL	-	-	-	-	-	-
VIDEO LEVEL	700mv	700mv	700mv	700mv	700mv	700mv
WHITE LEVEL	700mv	700mv	700mv	700mv	700mv	700mv
BLACK LEVEL	0 IRE	0 IRE	0 IRE	0 IRE	0 IRE	0 IRE
16 BIT DATA	0000	0000	0000	0000	0000	0000
H TOTAL	800 =31.778 us	900 =31.777 us	800 =31.778 us	840 =26.667 us	1056 =26.400 us	1040 =20.800 us
H DISPLAY	640 =25.422 us	720 =25.422 us	640 =25.422 us	640 =20.317 us	800 =20.000 us	800 =16.000 us
H B-PORCH	48 =1.907 us	54 =1.907 us	48 =1.907 us	120 =3.810 us	88 =2.200 us	64 =1.280 us
HS WIDTH	96 =3.813 us	108 =3.813 us	96 =3.813 us	64 =2.032 us	128 =3.200 us	120 =2.400 us
H BORDER	8 =0.318 us	9 =0.318 us	8 =0.318 us	0 =0.000 us	0 =0.000 us	0 =0.000 us
H SIZE	4.000mm	4.000mm	4.000mm	4.000mm	4.000mm	4.000mm
V TOTAL	449 =14.268 ms	449 =14.268 ms	525 =16.683 ms	500 =13.333 ms	628 =16.579 ms	666 =13.853 ms
V DISPLAY	350 =11.122 ms	400 =12.711 ms	480 =15.253 ms	480 =12.800 ms	600 =15.840 ms	600 =12.480 ms
V B-PORCH	60 =1.907 ms	35 =1.112 ms	33 =1.049 ms	16 =0.427 ms	23 =0.607 ms	23 =0.478 ms
VS WIDTH	2 =0.064 ms	2 =0.064 ms	2 =0.064 ms	3 =0.080 ms	4 =0.106 ms	6 =0.125 ms
V BORDER	6 =0.191 ms	7 =0.222 ms	8 =0.254 ms	0 =0.000 ms	0 =0.000 ms	0 =0.000 ms
V SIZE	3.000mm	3.000mm	3.000mm	3.000mm	3.000mm	3.000mm
HS OUTPUT	ON(+)	ON(-)	ON(-)	ON(-)	ON(+)	ON(+)
VS OUTPUT	ON(-)	ON(+)	ON(-)	ON(-)	ON(+)	ON(+)
XS OUTPUT	ON(+)	ON(+)	ON(+)	ON(+)	ON(+)	ON(+)
XS SELECT	SERR	SERR	SERR	SERR	SERR	SERR
Fh	=31.469 KHz	=31.469 KHz	=31.469 KHz	=37.500 KHz	=37.879 KHz	=48.077 KHz
fv	=70.087 Hz	=70.087 Hz	=59.941 Hz	=75.000 Hz	=60.317 Hz	=72.188 Hz



NAME	800X600-75	VESA1024X768-60	VESA1024X768-70	1024X768-75	NEC 1280X1024-60	1280X1024-75
PIXEL RATE	49.500 MHz	65.000 MHz	75.000 MHz	78.750 MHz	107.012 MHz	135.000 MHZ
INTERLACE	NO	NO	NO	NO	NO	NO
VIDEO	ANALOG-COLOR	ANALOG-COLOR	ANALOG-COLOR	ANALOG-COLOR	ANALOG-COLOR	ANALOG-COLOR
SYNC ON G?	NO	NO	NO	NO	YES	NO
SYNC LEVEL	-	-	-	-	300mv	-
VIDEO LEVEL	700mv	700mv	700mv	700mv	700mv	700mv
WHITE LEVEL	700mv	700mv	700mv	700mv	700mv	700mv
BLACK LEVEL	0 IRE	0 IRE	0 IRE	0 IRE	0 IRE	0 IRE
16 BIT DATA	0000	0000	0000	0000	0000	0000
H TOTAL	1056 =21.333 us	1344 =20.677 us	1328 =17.707 us	1312 =16.660 us	1664 =15.550 us	1688 =12.504 us
H DISPLAY	800 =16.162 us	1024 =15.754 us	1024 =13.653 us	1024 =13.003 us	1280 =11.961 us	1280 =9.481 us
H B-PORCH	160 =3.232 us	160 =2.462 us	144 =1.920 us	176 =2.235 us	240 =2.243 us	248 =1.837 us
HS WIDTH	80 =1.616 us	136 =2.092 us	136 =1.813 us	96 =1.219 us	104 =0.972 us	144 =1.067 us
H BORDER	0 =0.000 us	0 =0.000 us	0 =0.000 us	0 =0.000 us	0 =0.000 us	0 =0.000 us
H SIZE	4.000mm	4.000mm	4.000mm	4.000mm	4.000mm	4.000mm
V TOTAL	625 =13.333 ms	806 =16.666 ms	806 =14.272 ms	800 =13.328 ms	1065 =16.560 ms	1066 =13.329 ms
V DISPLAY	600 =12.800 ms	768 =15.880 ms	768 =13.599 ms	768 =12.795 ms	1024 =15.923 ms	1024 =12.804 ms
V B-PORCH	21 =0.448 ms	29 =0.600 ms	29 =0.513 ms	28 =0.466 ms	32 =0.498 ms	38 =0.475 ms
VS WIDTH	3 =0.064 ms	6 =0.124 ms	6 =0.106 ms	3 =0.050 ms	3 =0.047 ms	3 =0.038 ms
V BORDER	0 =0.000 ms	0 =0.000 ms	0 =0.000 ms	0 =0.000 ms	0 =0.000 ms	0 =0.000 ms
V SIZE	3.000mm	3.000mm	3.000mm	3.000mm	3.000mm	3.000mm
HS OUTPUT	ON(+)	ON(-)	ON(-)	ON(+)	ON(+)	ON(+)
VS OUTPUT	ON(+)	ON(-)	ON(-)	ON(+)	ON(+)	ON(+)
XS OUTPUT	ON(+)	ON(+)	ON(+)	ON(+)	ON(+)	ON(+)
XS SELECT	SERR	SERR	SERR	SERR	SERR	SERR
Fh	=46.875 KHz	=48.363 KHz	=56.476 KHz	=60.023 KHz	=64.310 KHz	=79.976 KHZ
fv	=75.000 Hz	=60.004 Hz	=70.069 Hz	=75.029 Hz	=60.385 Hz	=75.024 HZ



64.7
134.6
5
106
101.6
101.6
CN1
Vcc_PNL 30, 29, 28
88.27
1 & 2 +12V
3 BKLT EN
4 BKLT ADJ
5 & 6 GND
CN3
67.18
CN4
1 On_Off
2 LED_Org
3 LED_Grn
4 Right
5 Left
6 MENU
7 AUTO
8 GND
NX5120
GENESIS
DISPLAY PERFECTION
KRISTEL.
32-Pin
Flash Prom
U8
5
0
0
5
15.9
46
87.4
5
134.6
140



KRISTEL 1 8" LCD Monitor Operating information for GENESIS 5120 on screen dis-

LED status

- Power **ON**
- Sleep Mode
- Power **OFF**

S2_Menu **S4_Down** **S3_Up** **S4_Auto** **S1_Power**

Auto Tuning

Entry PAGE

KrisTel

Preset Mode

800x600 56.1Hz

Signal Select

ICON LEGEND

SIG. SELECT → Select: **VGA** **DVI** **E X I T**

VIDEO → Select: **BRIGHTNESS** **CONTRAST** **BLACK LEVEL** **E X I T**

AUDIO → Select: **VOLUME** **E X I T**

COLOR → Select: **COLOR TEMP.** **FLESH TONE** **HUE** **SATURATION** **E X I T**

IMAGE → Select: **AUTO TUNE** **H. WIDTH** **H. PHASE** **H. POSITION** **V. POSITION** **E X I T**

LANGUAGE → Select: **LANGUAGE**

TOOLS → Select: **OSD CONTROL** **RECALL** **SHARPNESS** **E X I T**

EXIT → Select: **E X I T**

V15120 LCD CONTROLLER BOARD



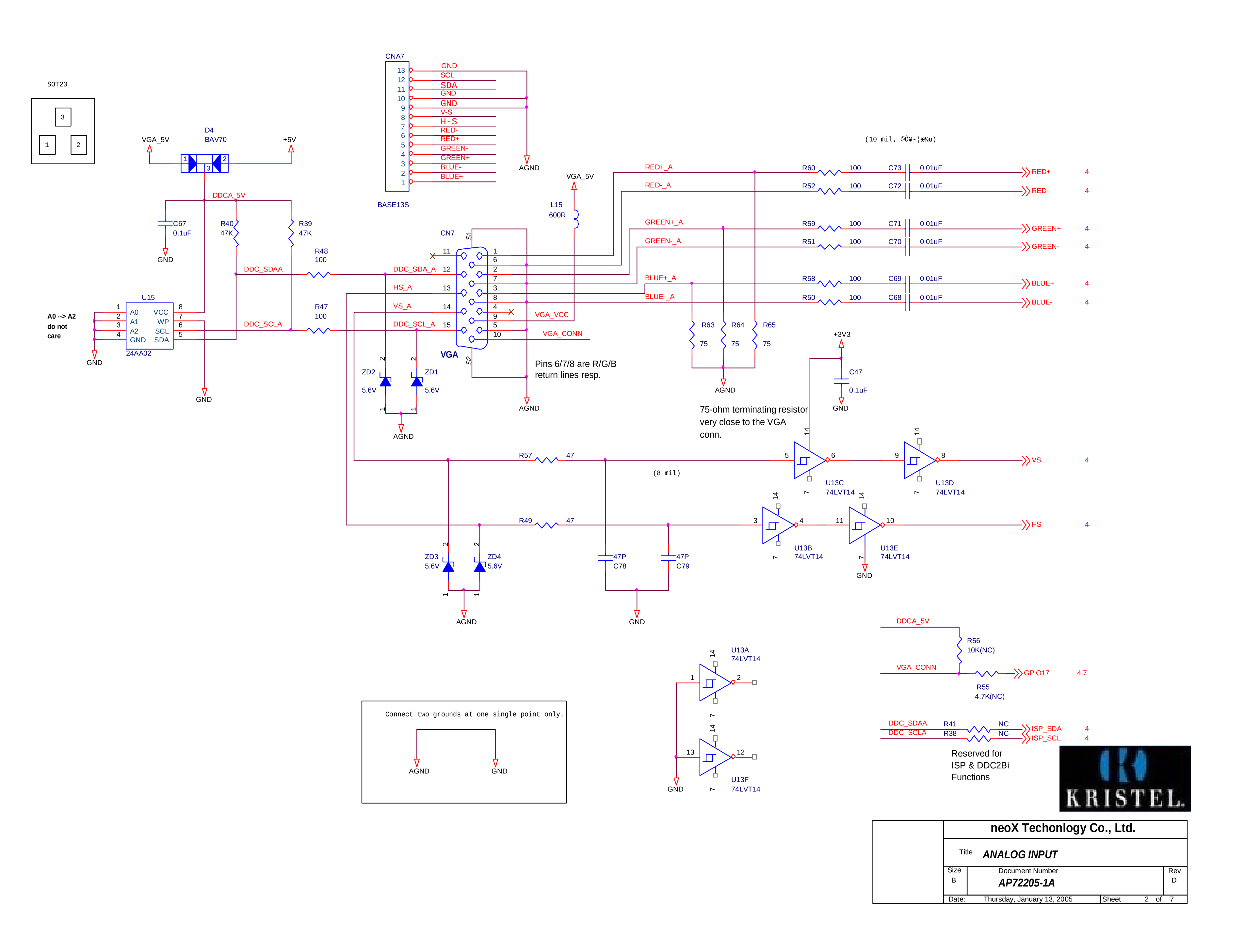
CONTENTS

REVISION HISTORY

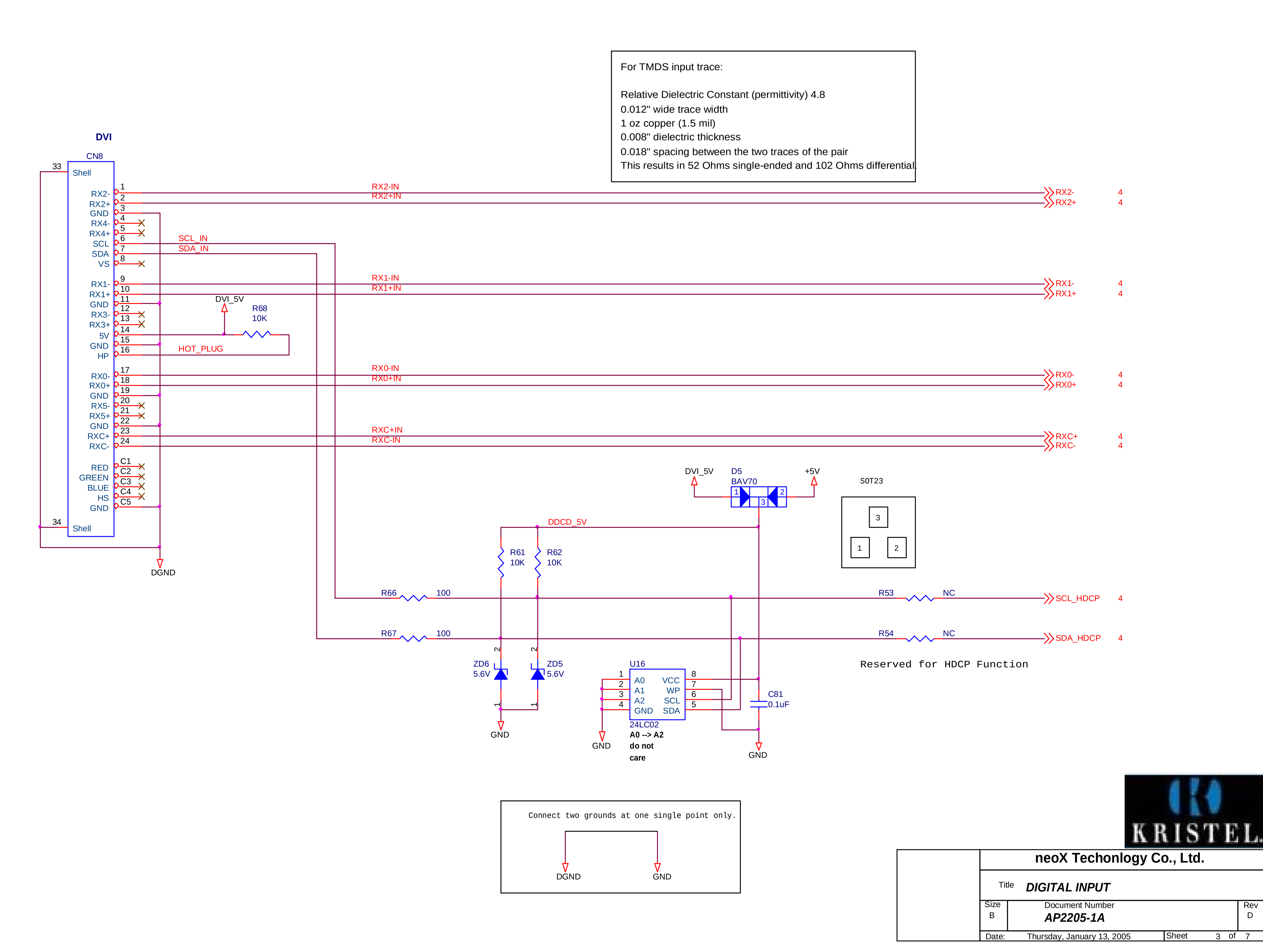
Date	Author	Ver	Comments
3/21/'02	Jed	X	Preliminary
1/24/'03	Tony	1.0	Change power IC from NS2576 to AIC1578 Add Audio AMP. Modify Keypad mapping
2/24/'03	Tony	1.01	Modify LVDS order bit 6.7 CH3
06/09/'03	Tony	1.02	Add Keypad 8P to 10P Increment Brightness control range more than 5 V Increment Audio Volume range more than 5 V
08/26/03		1.00	Modify from NX5120-SC
2003/08		A	PILOT RUN FROM ALITEL
2003/11		B	MASS PRODUCTION
2004/03		C	LAYOUT FOR REVERSE OF DIMMING
2004/07		D	LAYOUT FOR U9 RESET IC.

Approval	Organization	Signature	Date
	KRISTEL	2M	01.

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Title	*CONTENTS*
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SOT23
VGA_5V
D4
BAV70
+5V
DDCA_5V
C67
0.1uF
R40
47K
R39
47K
R48
100
R47
100
DDC_SDAA
DDC_SCLA
U15
A0 --> A2
do not
care
A0
A1
A2
GND
VCC
WP
SCL
SDA
24AA02
GND
CNA7
GND
SCL
SDA
GND
GND
V-S
H-S
RED-
RED+
GREEN-
GREEN+
BLUE-
BLUE+
BASE13S
AGND
CN7
DDC_SDA_A
HS_A
VS_A
DDC_SCL_A
VGA
VGA_VCC
VGA_CONN
L15
600R
VGA_5V
Pins 6/7/8 are R/G/B
return lines resp.
ZD2
5.6V
ZD1
5.6V
ZD3
5.6V
ZD4
5.6V
(10 mil, ©Ô¥-¦æ¼u)
RED+_A
RED-_A
GREEN+_A
GREEN-_A
BLUE+_A
BLUE-_A
R60
R52
R59
R51
R58
R50
100
C73
C72
C71
C70
C69
C68
0.01uF
RED+
RED-
GREEN+
GREEN-
BLUE+
BLUE-
R63
R64
R65
75
+3V3
C47
0.1uF
75-ohm terminating resistor
very close to the VGA
conn.
R57
47
R49
47
(8 mil)
47P
C78
47P
C79
U13A
U13B
U13C
U13D
U13E
U13F
74LVT14
VS
HS
DDCA_5V
R56
10K(NC)
VGA_CONN
GPIO17
4,7
R55
4.7K(NC)
DDC_SDAA
DDC_SCLA
R41
R38
NC
ISP_SDA
ISP_SCL
Reserved for
ISP & DDC2Bi
Functions
Connect two grounds at one single point only.
AGND
GND
KRISTEL
neoX Techonlogy Co., Ltd.
Title
ANALOG INPUT
Size
B
Document Number
AP72205-1A
Rev
D
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For TMDS input trace:
Relative Dielectric Constant (permittivity) 4.8
0.012" wide trace width
1 oz copper (1.5 mil)
0.008" dielectric thickness
0.018" spacing between the two traces of the pair
This results in 52 Ohms single-ended and 102 Ohms differential.
DVI
CN8
Shell
RX2-
RX2+
GND
RX4-
RX4+
SCL
SDA
VS
RX1-
RX1+
GND
RX3-
RX3+
5V
GND
HP
RX0-
RX0+
GND
RX5-
RX5+
GND
RXC+
RXC-
RED
GREEN
BLUE
HS
GND
Shell
DGND
SCL_IN
SDA_IN
DVI_5V
R68
10K
HOT_PLUG
RX2-IN
RX2+IN
RX1-IN
RX1+IN
RX0-IN
RX0+IN
RXC+IN
RXC-IN
RX2- 4
RX2+ 4
RX1- 4
RX1+ 4
RX0- 4
RX0+ 4
RXC+ 4
RXC- 4
DVI_5V
D5
BAV70
+5V
S0T23
DDCD_5V
R61
10K
R62
10K
R66 100
R67 100
R53 NC
R54 NC
SCL_HDCP 4
SDA_HDCP 4
ZD6
5.6V
ZD5
5.6V
GND
U16
A0
A1
A2
GND
VCC
WP
SCL
SDA
24LC02
A0 --> A2
do not
care
C81
0.1uF
GND
GND
Reserved for HDCP Function
Connect two grounds at one single point only.
DGND
GND
KRISTEL.
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Close to respective power Pins

Close to respective power Pins

RC Reset or Reset IC

Reset Circuit

Clock Trace 8 mil

GM5120 BD

U7 gm5120 PQFP208

U8 AMIC A290011TL-70

32-Pin PLCC Socket
FLASH/ Prom-Jet Socket

Select ISP & DDC2B1 Functions from DSUB15 or DVI

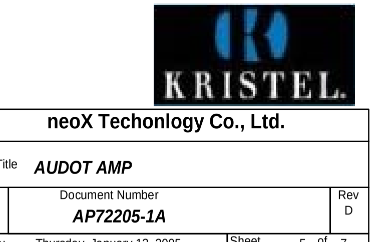
NVRAM

RS232 Debug Port

BOOTSTRAP SIGNALS

ADDRESS	NAME	SET	DESCRIPTION
ROM_ADDR(4:0)	USER_BITS(4:0)	x	Available for reading from a status register
ROM_ADDR5	HOST_ADDR(5)	0	Program this bit to 0
ROM_ADDR6	HOST_ADDR(6)	0	Program this bit to 0
ROM_ADDR7	HOST_PROTOCOL	0	If using 2-wire host protocol, program this bit to 0
ROM_ADDR8	HOST_PORT_EN	0	If using 2-wire host protocol, program this bit to 0
ROM_ADDR9	OCM_START	1	1 = OCM becomes active after OCM_CLK is stable
ROM_ADDR(12:10)	USER_BITS(7:5)	x	Available for reading from a status register
ROM_ADDR13	OSC_SEL	0	0 = XTAL and TCLK pins are connected
ROM_ADDR14	OCM_ROM_CFG(1)	1	1 = All 48K of ROM is in external ROM

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Title: gm5120		
Size: C	Document Number: AP2205-1A	Rev: D
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Title	AUDOT AMP
Size B	Document Number AP72205-1A / Rev D
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L3 +3V3
C7 0.1uF C11 0.1uF C17 0.1uF C16 0.1uF GND

U3
N7181F
TSSOP56

R6 4.7K

4 ER[0..7]
ER0 51 TXIN0
ER1 52 TXIN1
ER2 54 TXIN2
ER3 55 TXIN3
ER4 56 TXIN4
ER5 3 TXIN6
ER6 50 TXIN27
ER7 2 TXIN5

4 EG[0..7]
EG0 4 TXIN7
EG1 6 TXIN8
EG2 7 TXIN9
EG3 11 TXIN12
EG4 12 TXIN13
EG5 14 TXIN14
EG6 8 TXIN10
EG7 10 TXIN11

4 EB[0..7]
EB0 15 TXIN15
EB1 19 TXIN18
EB2 20 TXIN19
EB3 22 TXIN20
EB4 23 TXIN21
EB5 24 TXIN22
EB6 16 TXIN16
EB7 18 TXIN17

25 TXIN23
4 DHS 27 TXIN24
4 DVS 28 TXIN25
4 DEN 30 TXIN26
4 DISP_CLK 31 TXCLKIN

PWRDWN 32 LVDS_ON PPWR 4,7
TXOUT0- 48 TX0-E
TXOUT0+ 47 TX0+E
TXOUT1- 46 TX1-E
TXOUT1+ 45 TX1+E
TXOUT2- 42 TX2-E
TXOUT2+ 41 TX2+E
TXOUT3- 38 TX3-E
TXOUT3+ 37 TX3+E
TXCLKOUT- 40 TXCK-E
TXCLKOUT+ 39 TXCK+E
LVDSVCC 44 LVDSVCCE L5 +3V3
LVDSGND 49, LVDSGND 43, LVDSGND 36 — EC9 22U 16V, C12 0.1uF
PLLVCC 34 PLLVCCE L7 +3V3
PLLGND 35, PLLGND 33 — EC10 22U 16V, C18 0.1uF
GND 53, GND 29, GND 21, GND 13, GND 5 +3V3
R_FB 17
GND GND

EVEN PORT
TX3+E TX3-E TXCK+E TXCK-E TX2+E TX2-E TX1+E TX1-E TX0+E TX0-E

CN1
1–30
DF14A-30P-1.25H

TX3+O TX3-O TXCK+O TXCK-O TX2+O TX2-O TX1+O TX1-O TX0+O TX0-O

CP3 CP4 CP2 CP1 GND VCC_PNL GND

CN12 FOR
SHARP12.1"
LQ121S1DG41

CN12

GND	2	1	P-CLK	
P-DE	4	3		
GND	6	5	GND	
P-VS	8	7	P-HS	
GND	10	9	GND	
ER3	12	11	ER2	
ER5	14	13	ER4	
ER7	16	15	ER6	
GND	18	17	GND	
EG3	20	19	EG2	
EG5	22	21	EG4	
EG7	24	23	EG6	
GND	26	25	GND	
EB3	28	27	EB2	
EB5	30	29	EB4	
EB7	32	31	EB6	
	34	33		
VCC-LVDS	36	35	VCC-LVDS	
GND	38	37	GND	
GND	40	39	GND	

CONN RECT 20x2

L2 +3V3
C15 0.1uF C14 0.1uF C5 0.1uF C10 0.1uF GND

U2
N7181F
TSSOP56

R5 4.7K PPWR

4 OR[0..7]
OR0 51 TXIN0
OR1 52 TXIN1
OR2 54 TXIN2
OR3 55 TXIN3
OR4 56 TXIN4
OR5 3 TXIN6
OR6 50 TXIN27
OR7 2 TXIN5

4 OG[0..7]
OG0 4 TXIN7
OG1 6 TXIN8
OG2 7 TXIN9
OG3 11 TXIN12
OG4 12 TXIN13
OG5 14 TXIN14
OG6 8 TXIN10
OG7 10 TXIN11

4 OB[0..7]
OB0 15 TXIN15
OB1 19 TXIN18
OB2 20 TXIN19
OB3 22 TXIN20
OB4 23 TXIN21
OB5 24 TXIN22
OB6 16 TXIN16
OB7 18 TXIN17

25 TXIN23
DHS 27 TXIN24
DVS 28 TXIN25
DEN 30 TXIN26
DISP_CLK 31 TXCLKIN

PWRDWN 32
TXOUT0- 48 TX0-O
TXOUT0+ 47 TX0+O
TXOUT1- 46 TX1-O
TXOUT1+ 45 TX1+O
TXOUT2- 42 TX2-O
TXOUT2+ 41 TX2+O
TXOUT3- 38 TX3-O
TXOUT3+ 37 TX3+O
TXCLKOUT- 40 TXCK-O
TXCLKOUT+ 39 TXCK+O
LVDSVCC 44 LVDSVCCO L4 +3V3
LVDSGND 49, LVDSGND 43, LVDSGND 36 — EC7 22U 16V, C6 0.1uF
PLLVCC 34 PLLVCCO L6 +3V3
PLLGND 35, PLLGND 33 — EC8 22U 16V, C13 0.1uF
GND 53, GND 29, GND 21, GND 13, GND 5 +3V3
R_FB 17
GND GND

ODD PORT

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CN6 PV-564DA Right Angle — F1 JUMPER — L24 300R/5A — L24A 300R/5A — EC32 470U 16V — C84 0.1uF — EC31 470U 16V — C80 2200pF — C52 0.1uF — EC25 470U 16V — R37 10M — +12V — GND

U12 AIC1578 (VIN, DUTY, SHDN, FB, CS+, CS-, DRI, GND) — R34 7.5K F — R36 2.37K F — FB — R35 220 — U11 9435A — L14 CHOKE 33uH 3A — R23 COOPER MANGANCE 0.8D, 0.02 ohm — +5V — C85 0.1uF — C86 2200pF — C31 2200pF — EC23 1000U 6.3V LESR — D2 SK34 — C46 0.1uF — C30 2200pF — EC20 1000U 16V LESR

T0263 — U4 PJ1084-33CM (IN, OUT, ADJ) — +5V — +3V3 — 210mA(Chip) — EC13 100U 16V — C21 0.1uF — EC16 1000U 6.3V — C23 0.1uF — C22 0.01uF

T0252 — U14 AIC1117-2.5V (IN, OUT, GND) — +5V — +2V5 — D7 DL4001SMCT — 550mA(Chip) — C75 0.1uF — EC28 100U 16V — EC30 1000U 6.3V LESR — C74 0.1uF

LED_GREEN	GPIO 10
LED_ORANGE	GPIO 9
POWER_ON/OFF	GPIO 2
KEY_MENU	GPIO 3
KEY_RIGHT	GPIO 6
KEY_LEFT	GPIO 7
KEY_AUTO	GPIO 8

JP1 HEADER-2X3/S D2.54 — +12V — +5V — +3V3 — 40mil — U1 9435M (S, D, G) — R1 100K — EC3 100U 16V — CP5 — PPWR — R4 10K — C9 NC — Q1 KTC3785S — PANEL POWER — 40mil — FL1 1206 300R 5A — VCC_PNL — EC1 22U 16V — C2 0.1uF — C1 0.01uF — C6A 0.1U — GND

LED_ORGE — LED_GREN — R14 220 — R13 220 — Q3 KTC3875S — Q4 KTC3875S — +5V — +3V3 — R12 10K — RP1, RP1A-RP1C 10K — GPIO21 — GPIO17 — R77 4.7K(NC) — R78 4.7K(NC) — L9 BK-1608HS-601(NC) — L10 BK-1608HS-601(NC) — GPIO2 — L11 BK-1608HS-601 ON_OFF — L25 BK-1608HS-601 LED_ORG — L26 BK-1608HS-601 — CN4 JST-S10B-ZR — GPIO6 — GPIO7 — GPIO3 — GPIO8 — 4.7K RP2 — L12 600R — L13 600R — GND — USER INTERFACE

PBIAS — R2 4.7K — C3 0.1uF — EC2 470U/16V — L8 300R 5A — +12V — 2mm — CN3 HEADER 6/SM — BKLT_EN — BKLT_ADJ — +5V — R3A 220 — R3 1K — PWM0 — Q4A KRC102S — C8 0.1uF — EC6 22U 16V — C4 NC — GND — INVERTER INTERFACE

neoX Techonlogy Co., Ltd.

Title: POWER

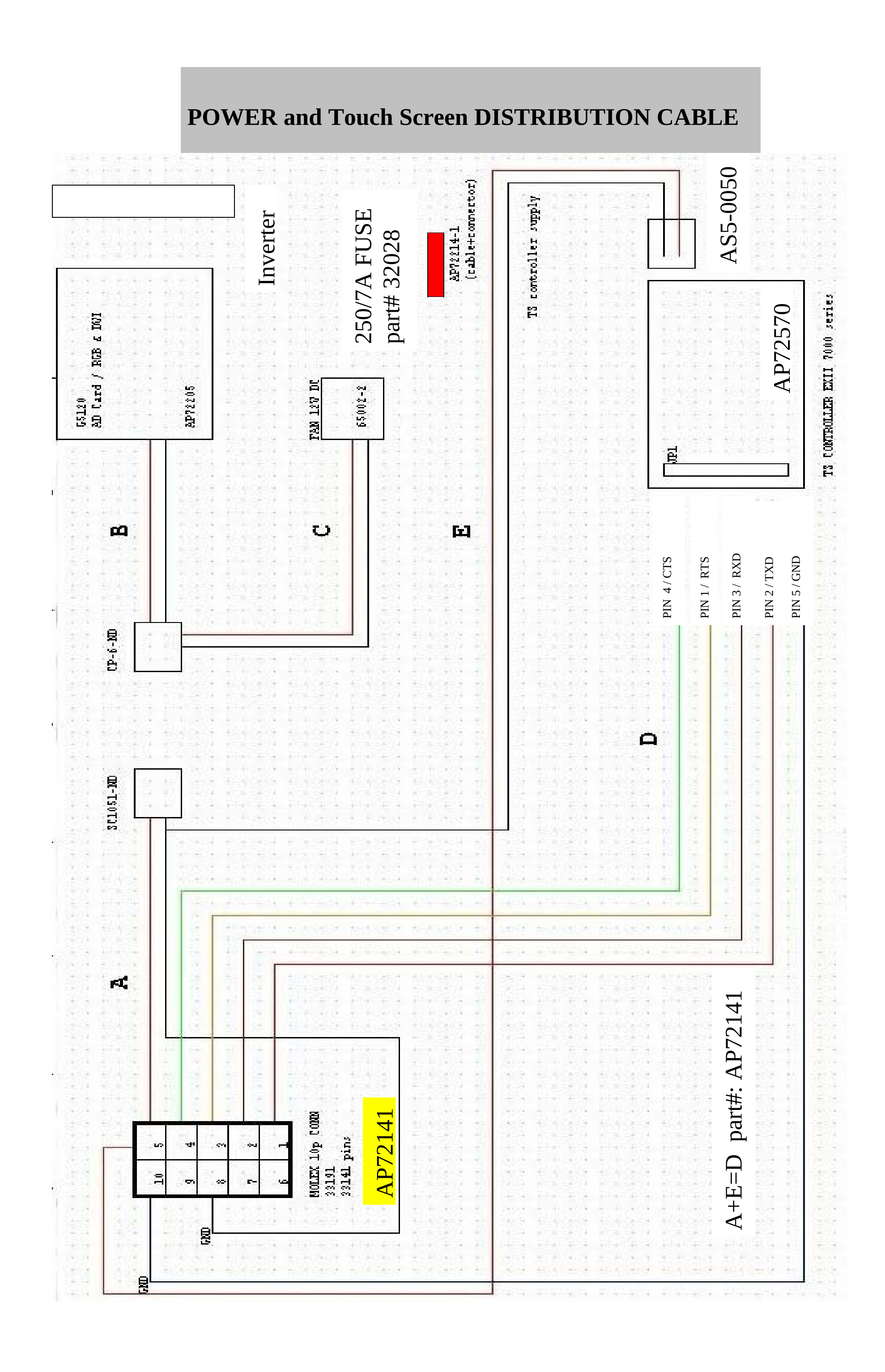
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Item	Quantity	Reference	Part
1	1	CNA7	BASE13S
2	2	CN2,CN10	BASE2
3	1	CN3	HEADER 6/SM
4	1	CN4	JST-S10B-ZR
5	1	CN5	HEADER 4
6	1	CN6	PV-564DA
7	1	CN7	VGA
8	1	CN8	DVI
9	1	CN9	PHONEJACK STEREO SW
10	4	CP1,CP2,CP3,CP4	COPPER
11	2	CP5,CP6	COPPER2
12	8	C1,C22,C68,C69,C70,C71, C72,C73	0.01uF
13	64	C2,C3,C5,C6,C7,C8,C10, C11,C12,C13,C14,C15,C16, C17,C18,C19,C20,C21,C23, C24,C25,C26,C27,C28,C29, C32,C33,C34,C35,C36,C37, C38,C39,C40,C41,C42,C43, C46,C47,C48,C49,C50,C51, C52,C53,C54,C55,C56,C57, C58,C59,C60,C61,C62,C63, C64,C65,C66,C67,C74,C75, C81,C84,C85	0.1uF
14	6	C4,C9,R38,R41,R53,R54	NC
15	4	C30,C31,C80,C86	2200pF
16	2	C44,C45	5P
17	2	C76,C77	220P
18	2	C78,C79	47P
19	2	C83,C82	0.47uF
20	3	EC25,EC32,C87	470U 16V
21	1	C88	0.1U
22	2	D7,D1	DL4001SMCT
23	1	D2	SK34
24	1	D3	1N4148
25	2	D5,D4	BAV70
26	1	D6	5.1V
27	13	EC1,EC6,EC7,EC8,EC9,EC10, EC14,EC15,EC17,EC22,EC24, EC26,EC29	22U 16V
28	1	EC2	470U/16V
29	3	EC3,EC13,EC28	100U 16V
30	4	EC4,EC5,EC11,EC19	470U 25V
31	1	EC12	1uF
32	1	EC16	1000U 6.3V
33	1	EC18	10U 25V
34	1	EC20	1000U 16V LESR
35	2	EC21,EC27	22uF 16V

36	2	EC23,EC30	1000U 6.3V LESR
37	1	FL1	1206 300R 5A
38	1	F1	JUMPER
39	1	JP1	HEADER-2X3/S D2.54
40	1	JR3	CONN RECT 20x2
41	1	J2	CON2
42	1	J3	DF14A-30P-1.25H
43	6	L2,L3,L4,L5,L6,L7	SBK-160808T-300Y
44	1	L8	300R 5A
45	2	L9,L10	BK-1608HS-601(NC)
46	8	L11,L13,L25,L26,L27,L28, L29,L30	BK-1608HS-601
47	1	L14	CHOKE
48	1	L15	600R
49	6	L16,L17,L18,L19,L20,L21	SBK-201209T-601Y
50	2	L23,L22	BEAD
51	1	L24	300R/5A
52	1	Q1	KTC3785S
53	3	Q2,Q3,Q4	KTC3875S
54	1	Q8	KRC102S
55	15	RP1,R4,R7,R8,R9,R10,R11, R12,R21,R25,R32,R33,R61, R62,R68	10K
56	7	RP2,R2,R5,R6,R20,R28,R71	4.7K
57	1	R1	100K
58	3	R3,R22,R42	1K
59	4	R13,R14,R19,R35	220
60	4	R15,R16,R17,R18	33
61	1	R23	COOPER MANGANCE
62	4	R24,R26,R31,R56	10K(NC)
63	1	R27	2.7K
64	2	R29,R75	0
65	2	R76,R30	0(NC)
66	1	R34	7.5K F
67	1	R36	2.37K F
68	1	R37	10M
69	2	R40,R39	47K
70	4	R43,R44,R45,R46	22K
71	10	R47,R48,R50,R51,R52,R58, R59,R60,R66,R67	100
72	2	R57,R49	47
73	3	R55,R77,R78	4.7K(NC)
74	3	R63,R64,R65	75
75	1	R70	100R 0805
76	1	U1	9435M
77	2	U2,U3	N7181F
78	1	U4	PJ1084-33CM
79	1	U5	24LC16B
80	1	U6	TDA7496L
81	1	U7	gm5120
82	1	U8	AMIC A290011TL-70
83	1	U9	V6300(NC)
84	1	U10	KIA7027AP
85	1	U11	9435A

86	1	U12	AIC1578	
87	1	U13	74LVT14	
88	1	U14	AIC1117-2.5V	
89	1	U15	24AA02	
90	1	U16	24LC02	
91	1	X1	14.318MHz	
92	6	ZD1,ZD2,ZD3,ZD4,ZD5,ZD6		5.6V



DC to AC INVERTER is designed as a low noise, high frequency high efficiency and as a low profile efficiency and light weight switching power supply.

1. Features

(1) Constant current output to control brightness.
(2) Auto shut off during.
(3) High performance, high efficiency.
(4) Low noise, low leakage.
(5) Fixed output frequency does not effect by brightness adjustment.

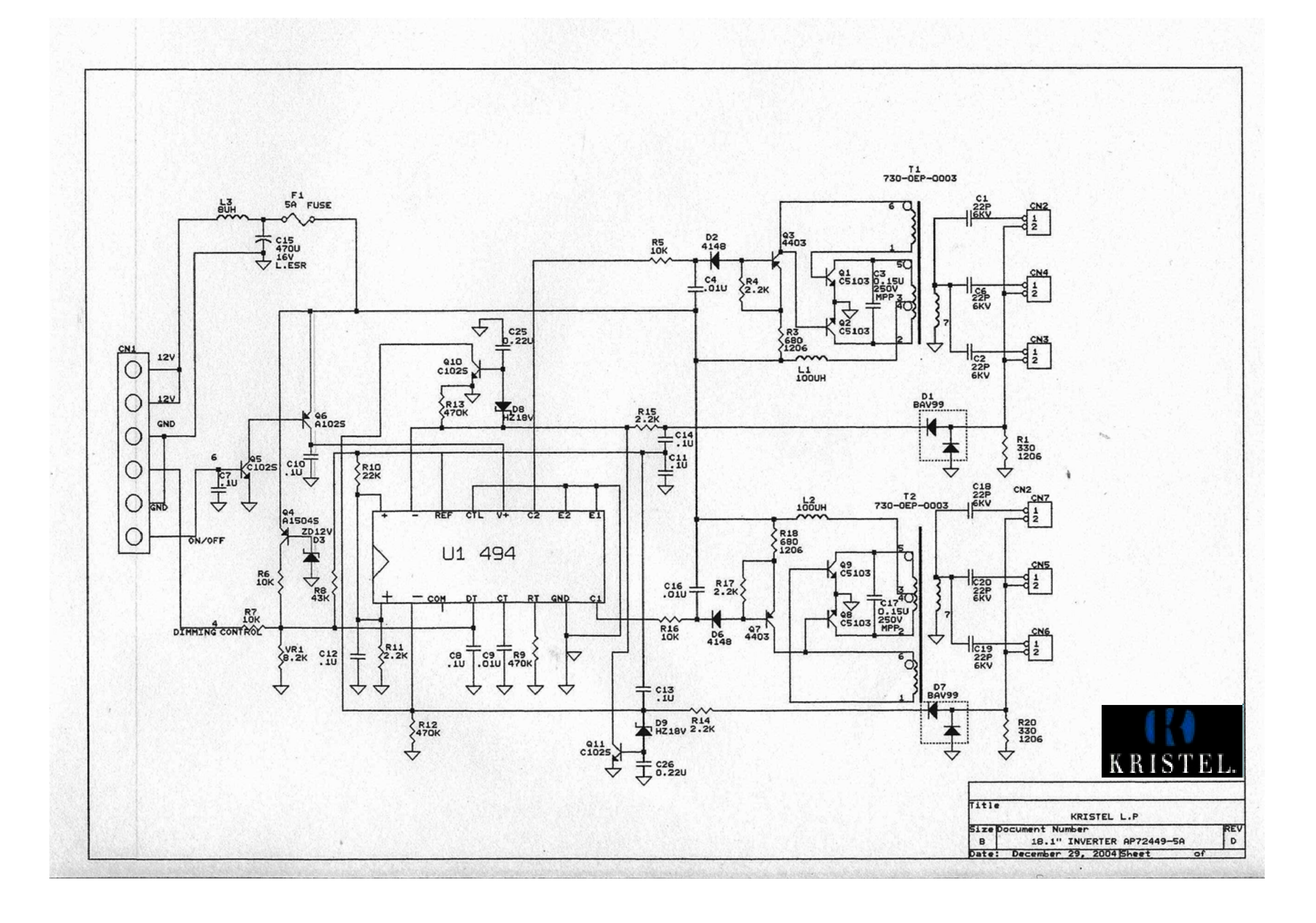
2. Application: Large screens (output HV connectors may vary)
LG PHILIPS, CHI MEI, FUJITSU, SHARP etc. (18" and 19")

3. Operating Coditions:

Item	Symbol	Conditions	Min	Max	Unit	Remark
Input Voltage	V in		10	-	V	
Operating Temperature	Top	Ha=90% RH	0	65	C	
Storage Temperature	T stg	Ha=95% RH	-10	80	C	
Operating Humidity	Hop	Ta=0 ~ 55 C	-20	90	% RH	
Storage Humidity	H stg	Ta=20 ~ 80 c	-	95	% RH	

4. Operating Characteristics:

Item	Symbol	Conditions	Min	Type	Max	Unit
Input Voltage	Vin	GND=0V	10.8	12	13.2	V
6 lamps Input Current (Low Brightness	I in L	Vin=Typ.+-1%ON VR=Min(Iout=Min)	1.3	1.5	1.7	A
6 lamps Input Current (High Brightness)	I in H	Vin=Typ.+-1% ON VR=Max(Iout=Max)	2.8	3.2	3.5	A
One lamp Current(Low Brightness)	I out L	Vin=Typ.+-1% ON VR=Min(Iout=Min)	3.0	4.0	5.2	ma Rms
One lamp Current (High Brightness)	I out H	Vin=Typ.+-1% ON Vr=Max(Iout=Max)	6.0	7.0	8.0	mA rms
Working frequency			60	63	65	KHZ
Dimming		Tube Current	>2.5:1	-	-	
Output Voltage		CCFT Current=7mA		650	700	V rms
Brightness Control		Connection of voltage	5	-	0	V



CN1
12V
12V
GND
GND
ON/OFF
4
DIMMING CONTROL
6
L3
8UH
F1
5A FUSE
C15
470U
16V
L.ESR
C7
.1U
Q5
C102S
Q6
A102S
C10
.1U
Q4
A1504S
ZD12V
D3
R6
10K
R8
43K
R7
10K
VR1
8.2K
C12
.1U
R10
22K
R11
2.2K
Q10
C102S
R13
470K
C25
0.22U
D8
HZ18V
U1 494
+
-
REF
CTL
V+
C2
E2
E1
COM
DT
CT
RT
GND
C1
C8
.1U
C9
.01U
R9
470K
R12
470K
R15
2.2K
C14
.1U
C11
.1U
C13
.1U
D9
HZ18V
R14
2.2K
Q11
C102S
C26
0.22U
R5
10K
D2
4148
C4
.01U
R4
2.2K
Q3
4403
R3
680
1206
L1
100UH
Q1
C5103
Q2
C5103
C3
0.15U
250V
MPP
T1
730-0EP-0003
C1
22P
6KV
CN2
C6
22P
6KV
CN4
C2
22P
6KV
CN3
D1
BAV99
R1
330
1206
R16
10K
C16
.01U
D6
4148
R17
2.2K
Q7
4403
R18
680
1206
L2
100UH
Q9
C5103
Q8
C5103
C17
0.15U
250V
MPP
T2
730-0EP-0003
C18
22P
6KV
CN2
CN7
C20
22P
6KV
CN5
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6KV
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1206
KRISTEL.
Title
KRISTEL L.P
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18.1" INVERTER AP72449-5A
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Date: December 29, 2004
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